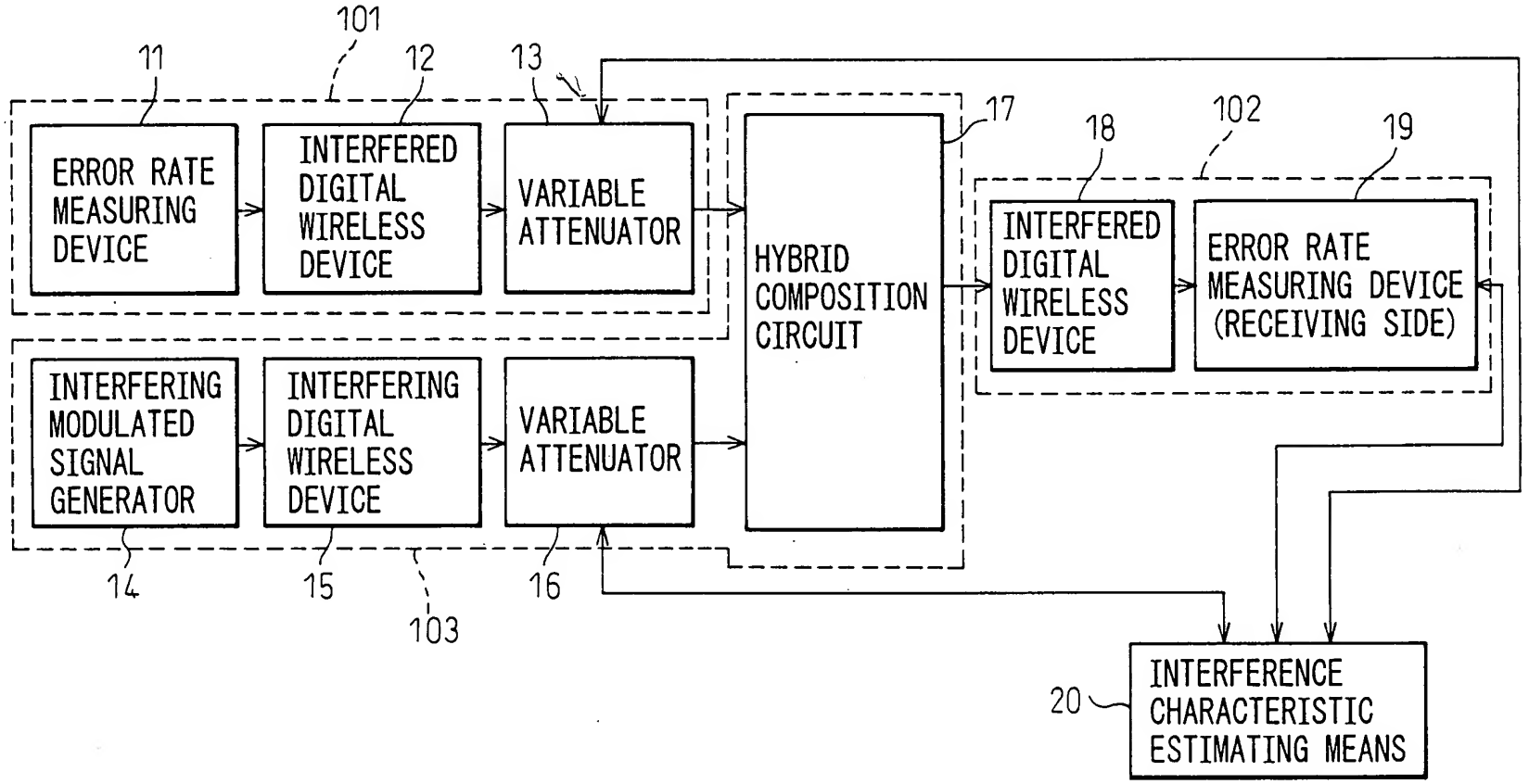
Fig.1



OIPE
IAP64
JUN 19 2006
PATENT & TRADEMARK OFFICE

Fig.2A

INPUT SIGNAL SPECTRUM

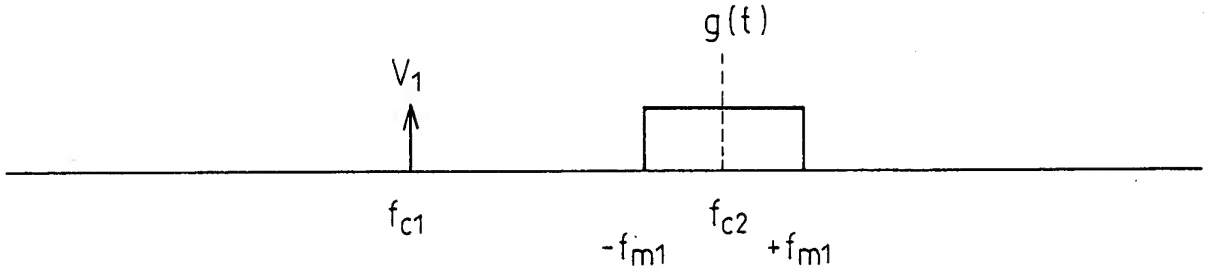


Fig.2B

OUTPUT SIGNAL SPECTRUM

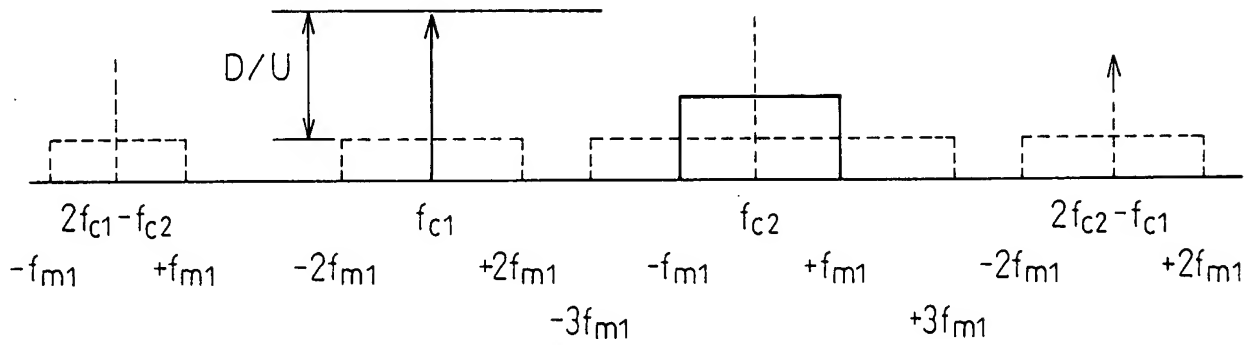


Fig.3

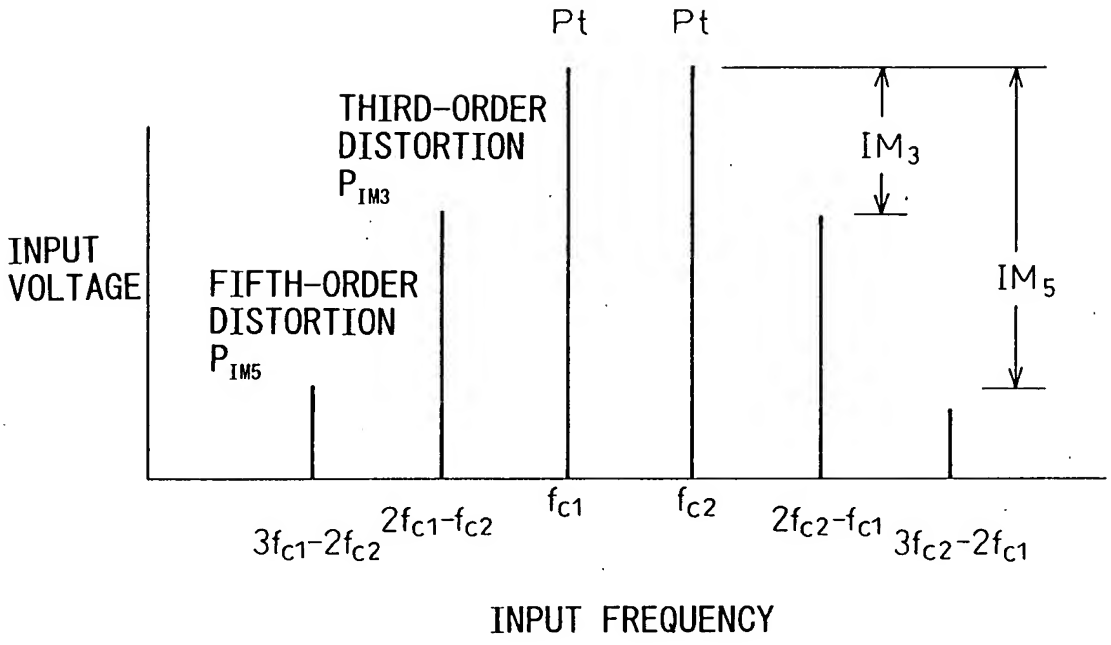

Pt
Pt
THIRD-ORDER DISTORTION P_{IM3}
IM_3
IM_5
INPUT VOLTAGE
FIFTH-ORDER DISTORTION P_{IM5}
$3f_{c1}-2f_{c2}$
$2f_{c1}-f_{c2}$
f_{c1}
f_{c2}
$2f_{c2}-f_{c1}$
$3f_{c2}-2f_{c1}$
INPUT FREQUENCY

Fig.4

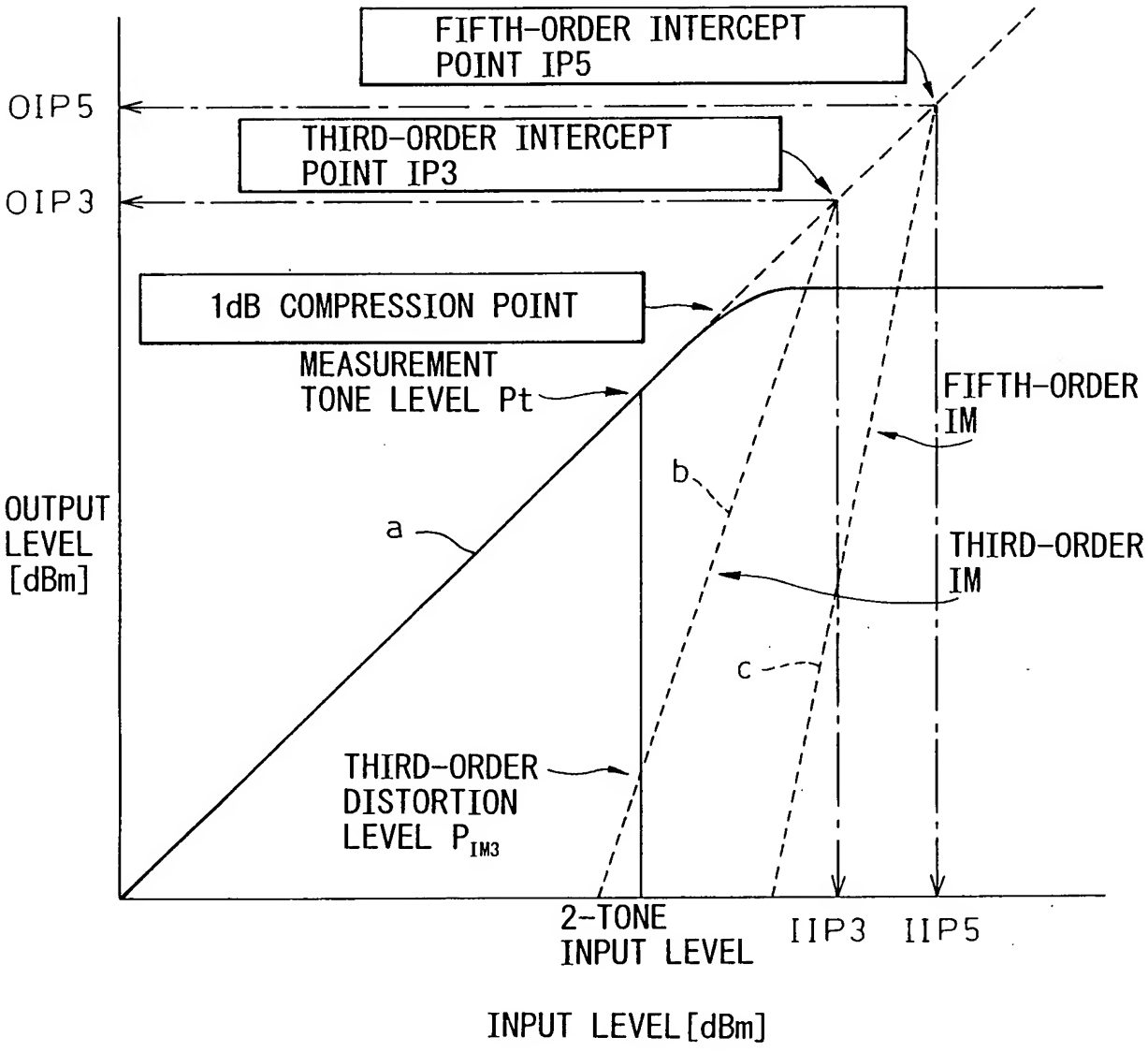

FIFTH-ORDER INTERCEPT POINT IP5
OIP5
THIRD-ORDER INTERCEPT POINT IP3
OIP3
1dB COMPRESSION POINT
MEASUREMENT TONE LEVEL Pt
FIFTH-ORDER IM
b
a
THIRD-ORDER IM
c
OUTPUT LEVEL [dBm]
THIRD-ORDER DISTORTION LEVEL P_{IM3}
2-TONE INPUT LEVEL
IIP3
IIP5
INPUT LEVEL [dBm]

Fig.5A

INPUT SIGNAL SPECTRUM

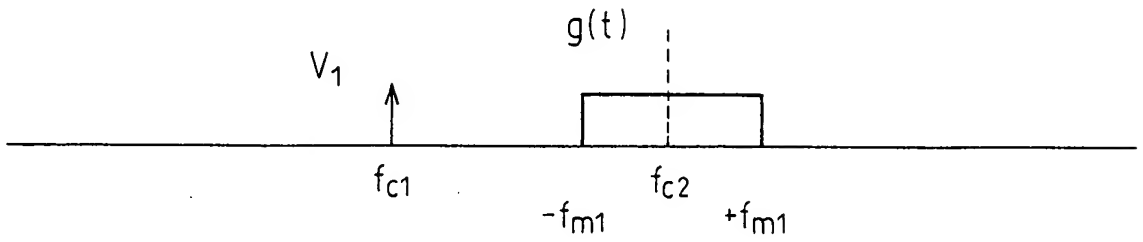


Fig.5B

OUTPUT SIGNAL SPECTRUM

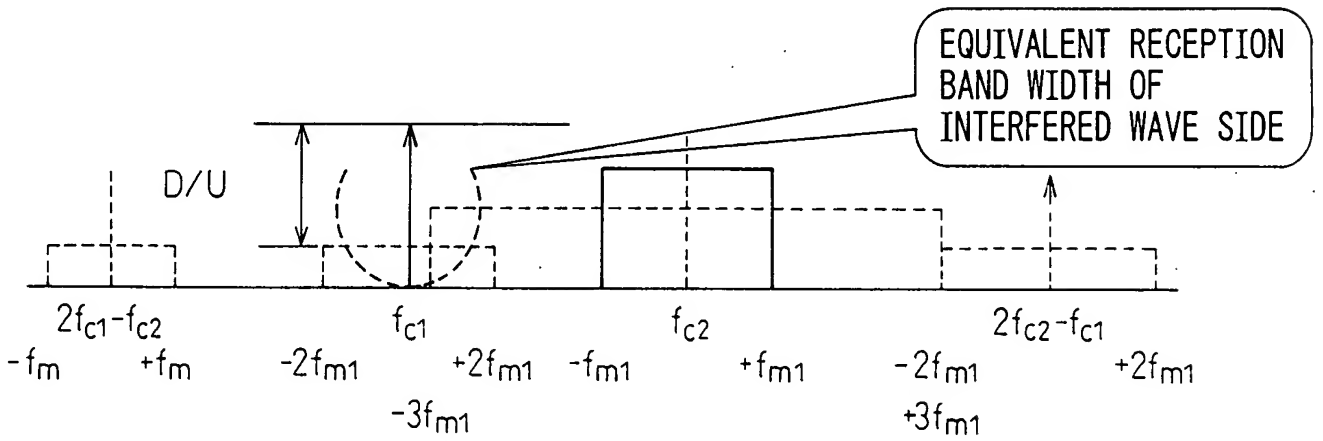


Fig.6

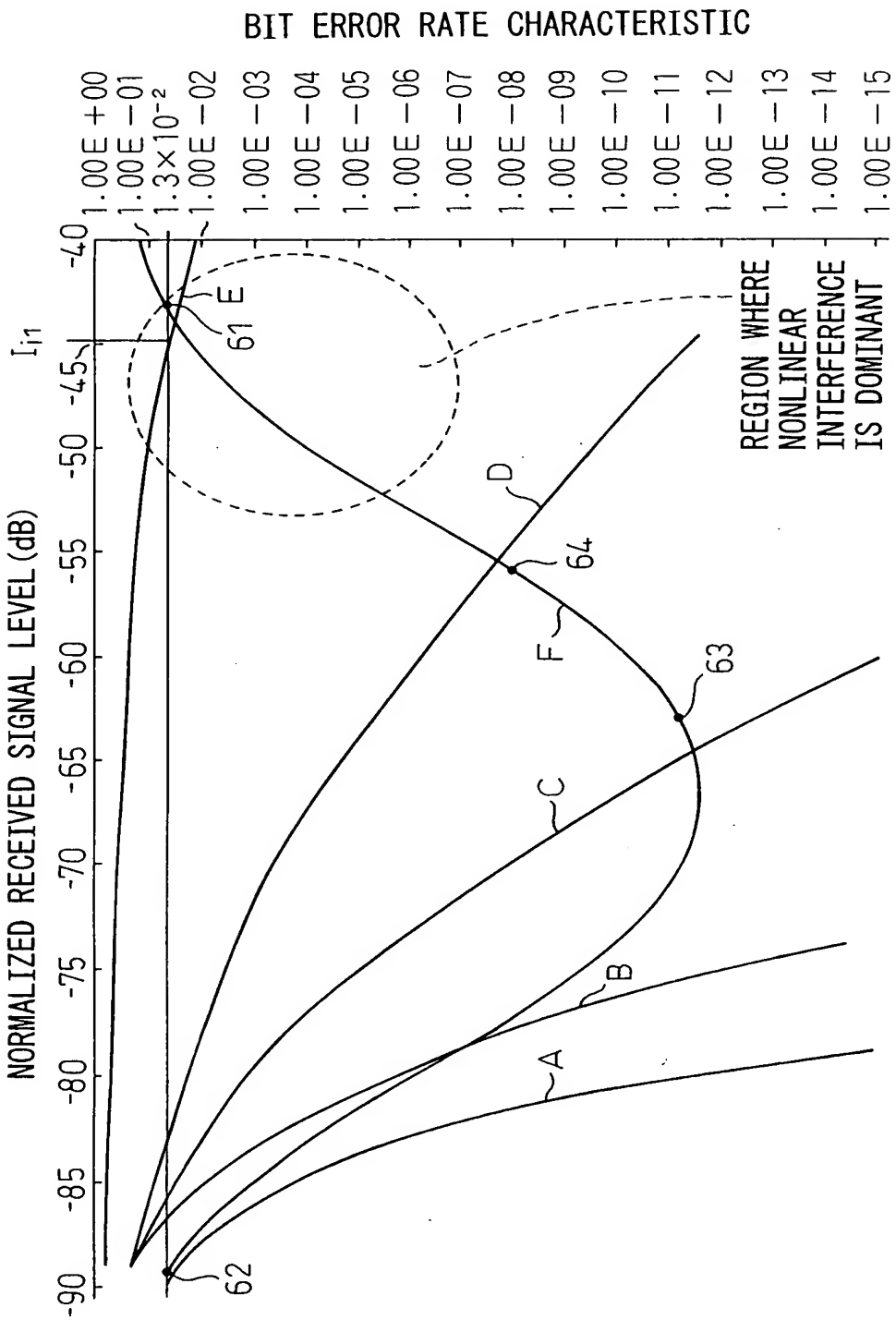

BIT ERROR RATE CHARACTERISTIC
1.00E+00
1.00E−01
1.3×10⁻²
1.00E−02
1.00E−03
1.00E−04
1.00E−05
1.00E−06
1.00E−07
1.00E−08
1.00E−09
1.00E−10
1.00E−11
1.00E−12
1.00E−13
1.00E−14
1.00E−15
NORMALIZED RECEIVED SIGNAL LEVEL (dB)
-40
-45
-50
-55
-60
-65
-70
-75
-80
-85
-90
I_{i1}
REGION WHERE NONLINEAR INTERFERENCE IS DOMINANT
A
B
C
D
E
F
61
62
63
64

Fig.7

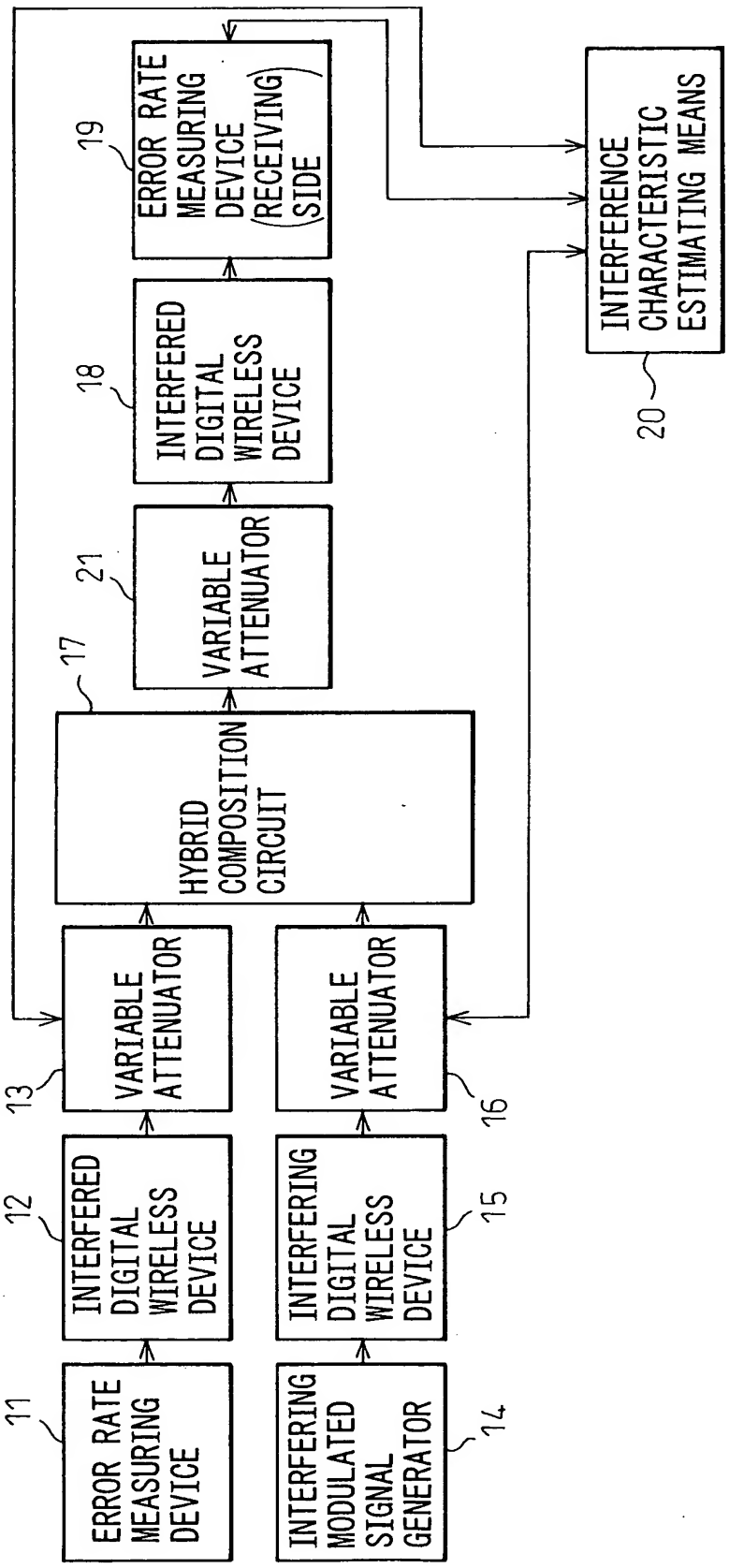

ERROR RATE MEASURING DEVICE
11
INTERFERED DIGITAL WIRELESS DEVICE
12
VARIABLE ATTENUATOR
13
INTERFERING MODULATED SIGNAL GENERATOR
14
INTERFERING DIGITAL WIRELESS DEVICE
15
VARIABLE ATTENUATOR
16
HYBRID COMPOSITION CIRCUIT
17
INTERFERED DIGITAL WIRELESS DEVICE
18
ERROR RATE MEASURING DEVICE (RECEIVING SIDE)
19
INTERFERENCE CHARACTERISTIC ESTIMATING MEANS
20
VARIABLE ATTENUATOR
21

Fig.8

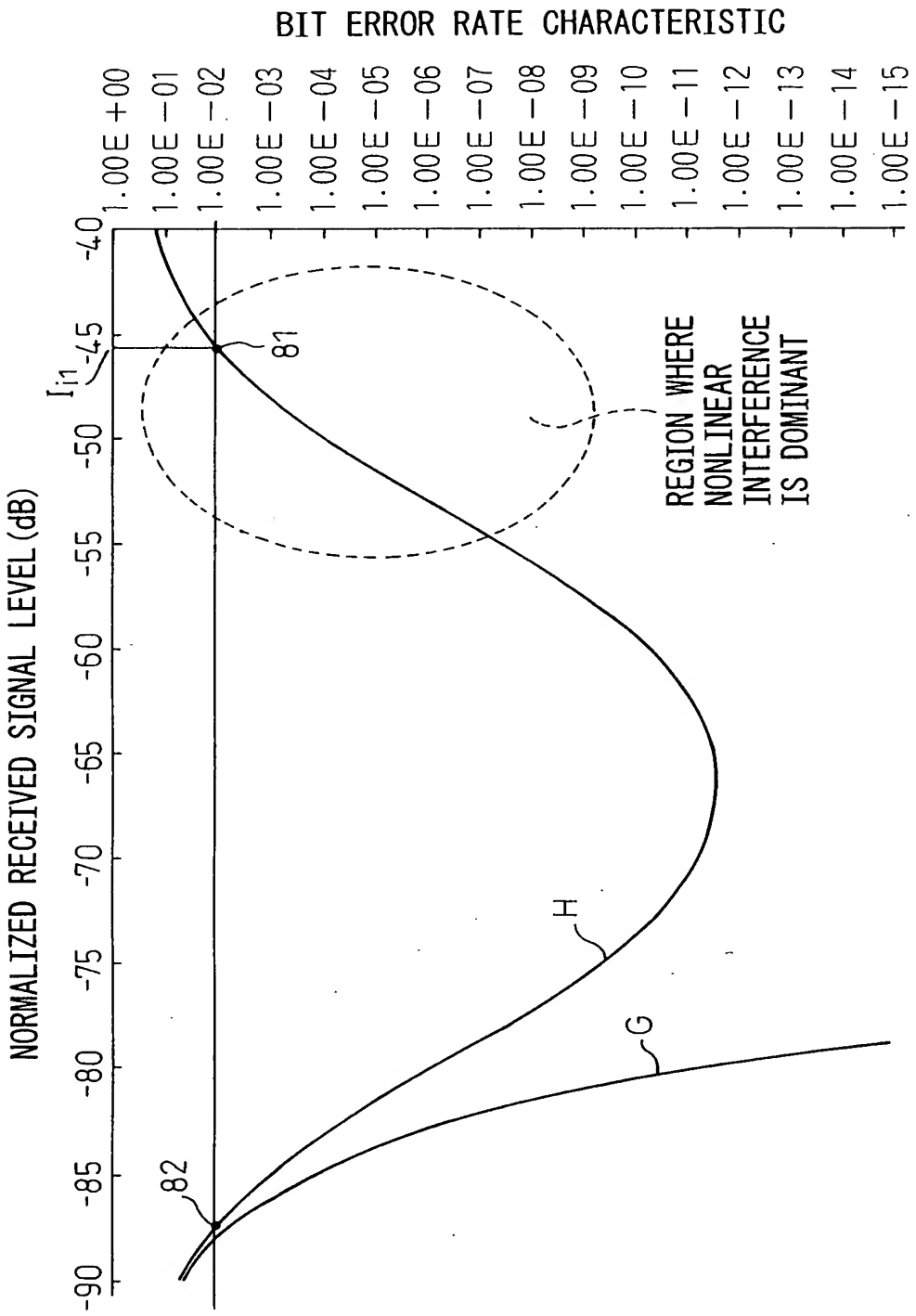

BIT ERROR RATE CHARACTERISTIC
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
NORMALIZED RECEIVED SIGNAL LEVEL (dB)
-40
-45
-50
-55
-60
-65
-70
-75
-80
-85
-90
I_{i1}
81
82
H
G
REGION WHERE NONLINEAR INTERFERENCE IS DOMINANT

Fig.9

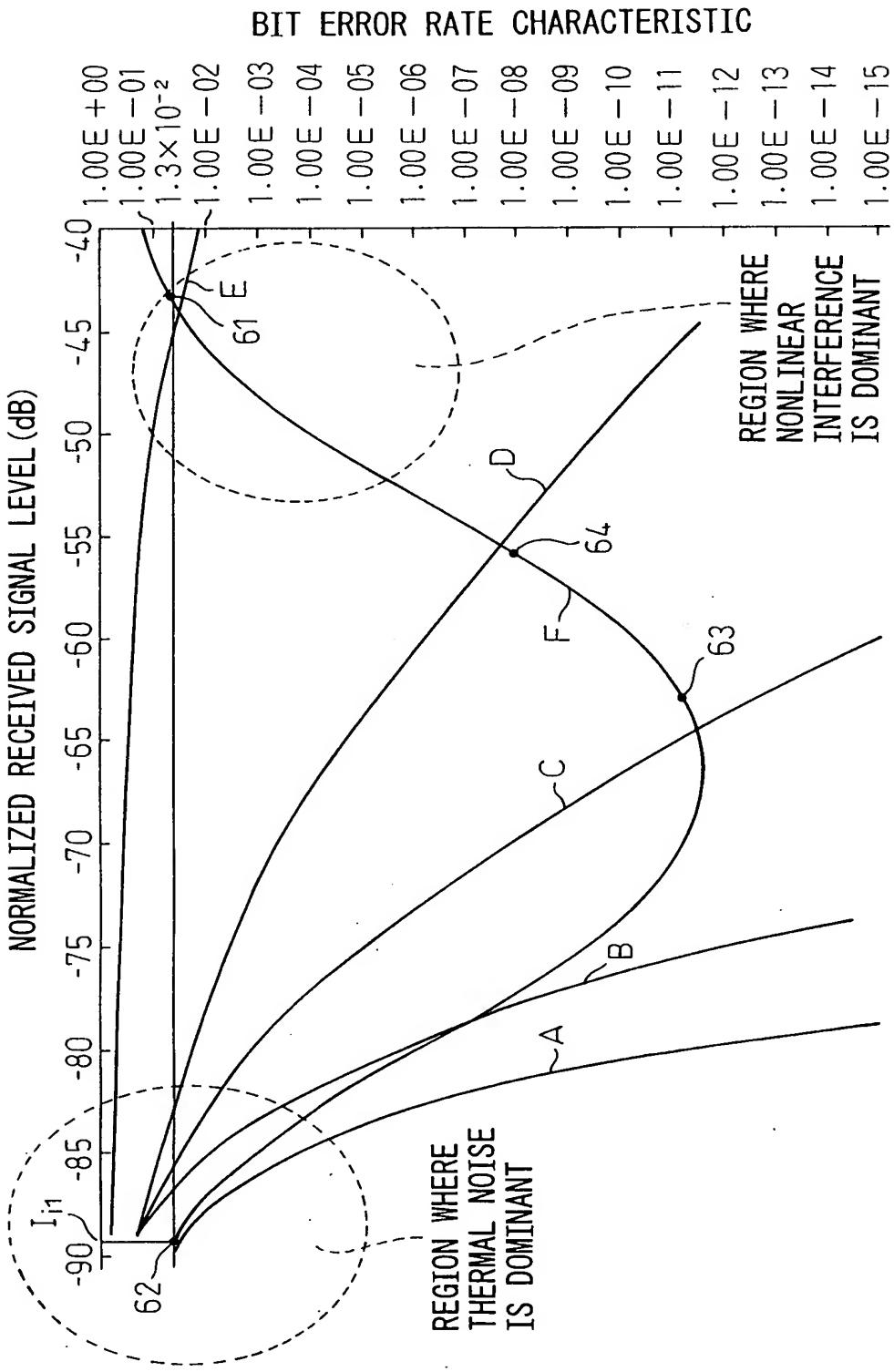

BIT ERROR RATE CHARACTERISTIC
1.00E+00
1.00E-01
1.3×10⁻²
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
NORMALIZED RECEIVED SIGNAL LEVEL (dB)
-40
-45
-50
-55
-60
-65
-70
-75
-80
-85
-90
I_{i1}
61
62
63
64
A
B
C
D
E
F
REGION WHERE THERMAL NOISE IS DOMINANT
REGION WHERE NONLINEAR INTERFERENCE IS DOMINANT

Fig.10

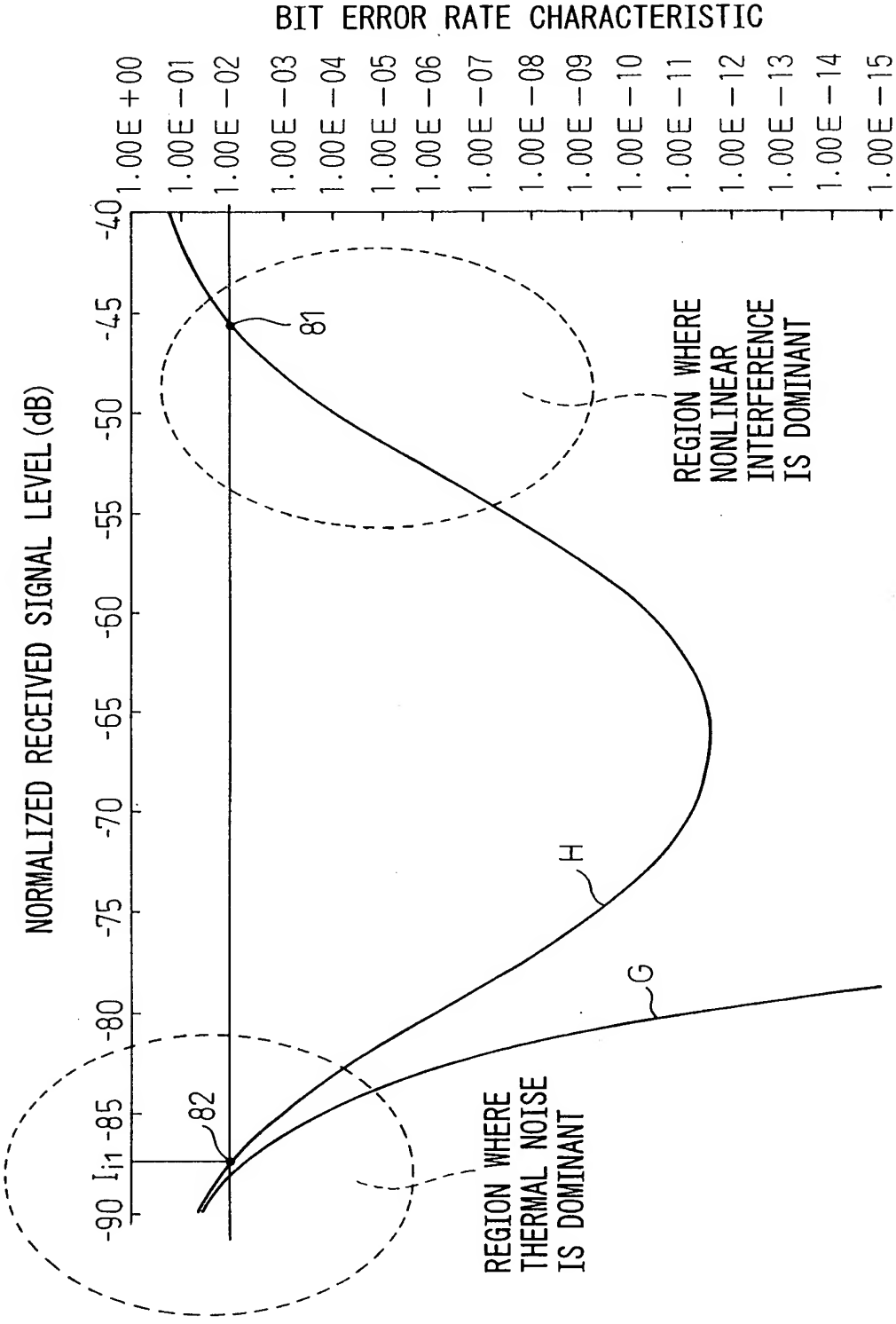

BIT ERROR RATE CHARACTERISTIC
1.00E+00
1.00E−01
1.00E−02
1.00E−03
1.00E−04
1.00E−05
1.00E−06
1.00E−07
1.00E−08
1.00E−09
1.00E−10
1.00E−11
1.00E−12
1.00E−13
1.00E−14
1.00E−15
NORMALIZED RECEIVED SIGNAL LEVEL (dB)
-40
-45
-50
-55
-60
-65
-70
-75
-80
-85
-90
I_{i1}
81
82
H
G
REGION WHERE NONLINEAR INTERFERENCE IS DOMINANT
REGION WHERE THERMAL NOISE IS DOMINANT

Fig.11

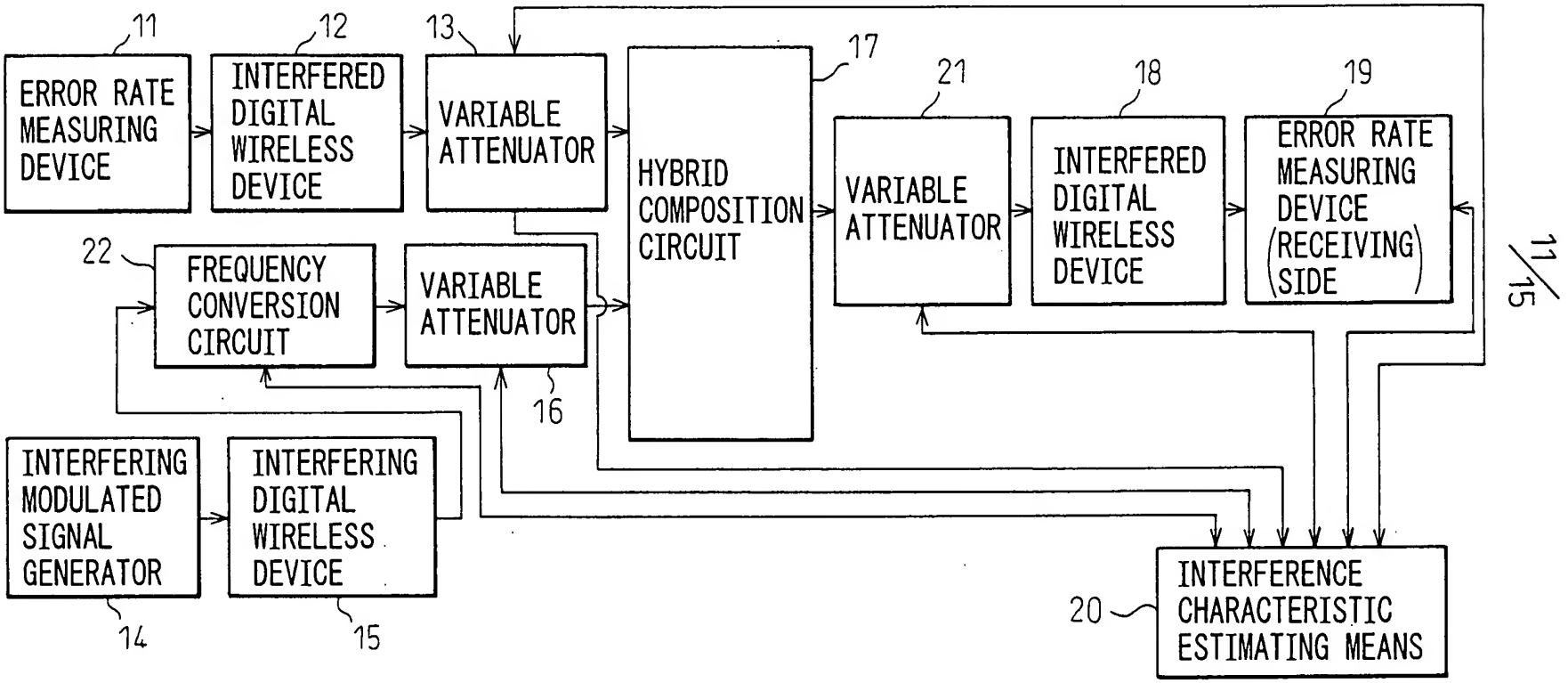

11
ERROR RATE MEASURING DEVICE
12
INTERFERED DIGITAL WIRELESS DEVICE
13
VARIABLE ATTENUATOR
17
HYBRID COMPOSITION CIRCUIT
21
VARIABLE ATTENUATOR
18
INTERFERED DIGITAL WIRELESS DEVICE
19
ERROR RATE MEASURING DEVICE (RECEIVING SIDE)
11/15
22
FREQUENCY CONVERSION CIRCUIT
VARIABLE ATTENUATOR
16
INTERFERING MODULATED SIGNAL GENERATOR
14
INTERFERING DIGITAL WIRELESS DEVICE
15
20
INTERFERENCE CHARACTERISTIC ESTIMATING MEANS

Fig.12

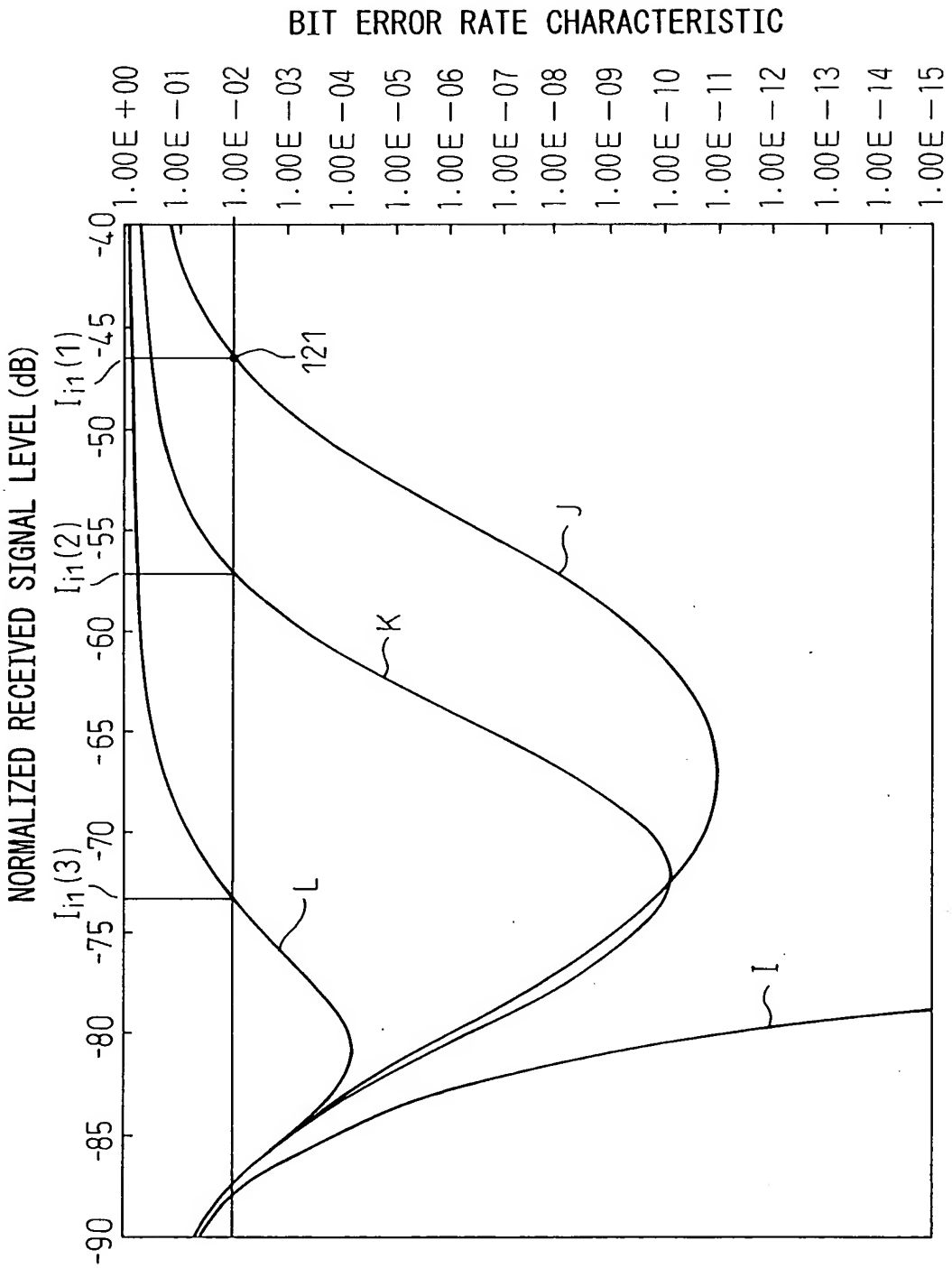

BIT ERROR RATE CHARACTERISTIC
NORMALIZED RECEIVED SIGNAL LEVEL (dB)
-40
-45
-50
-55
-60
-65
-70
-75
-80
-85
-90
$I_{in1}(1)$
$I_{in1}(2)$
$I_{in1}(3)$
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
121
I
J
K
L

Fig.13

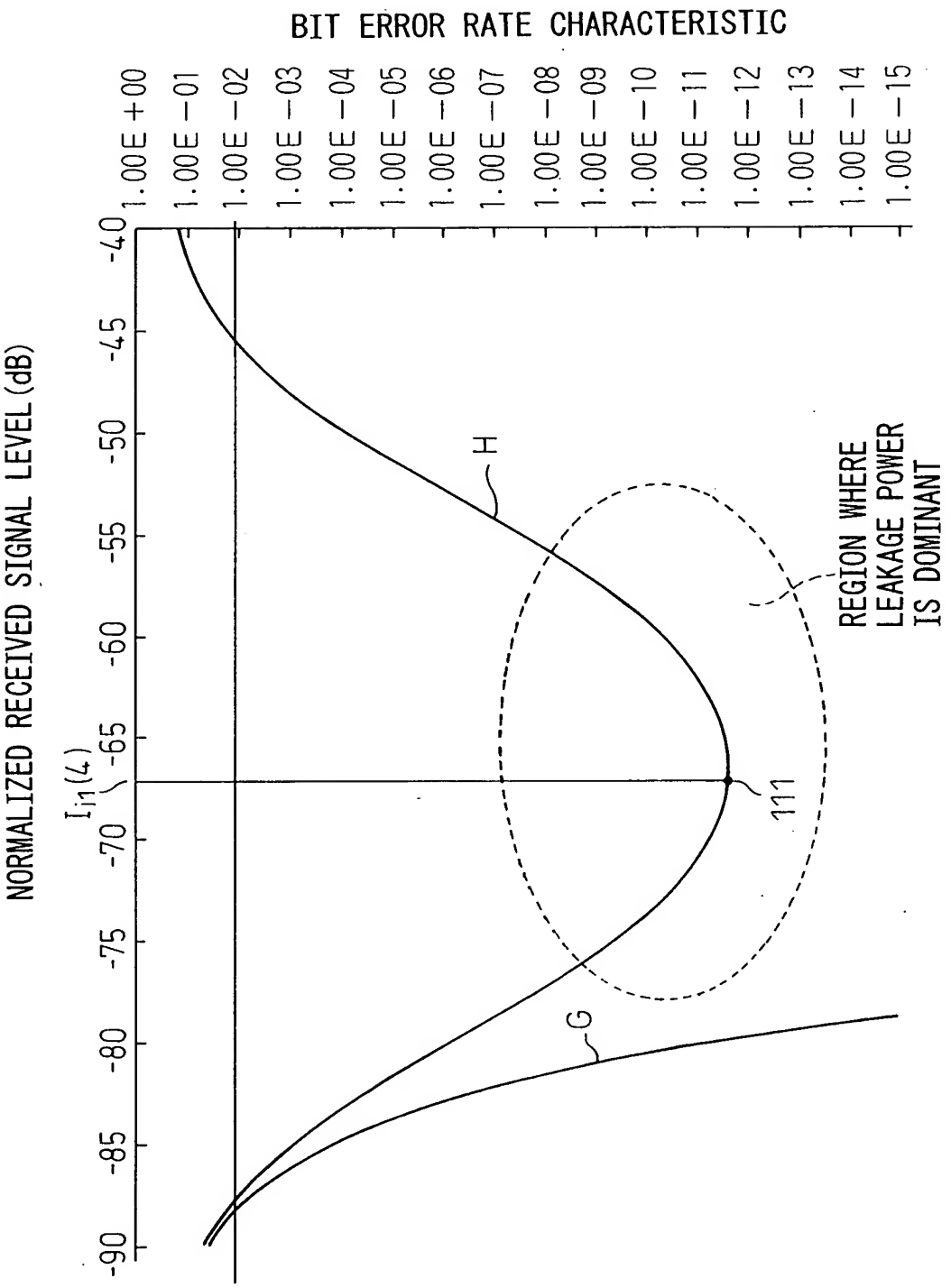

BIT ERROR RATE CHARACTERISTIC
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
NORMALIZED RECEIVED SIGNAL LEVEL (dB)
-40
-45
-50
-55
-60
-65
-70
-75
-80
-85
-90
$I_{i1}(4)$
H
G
111
REGION WHERE
LEAKAGE POWER
IS DOMINANT

Fig.14

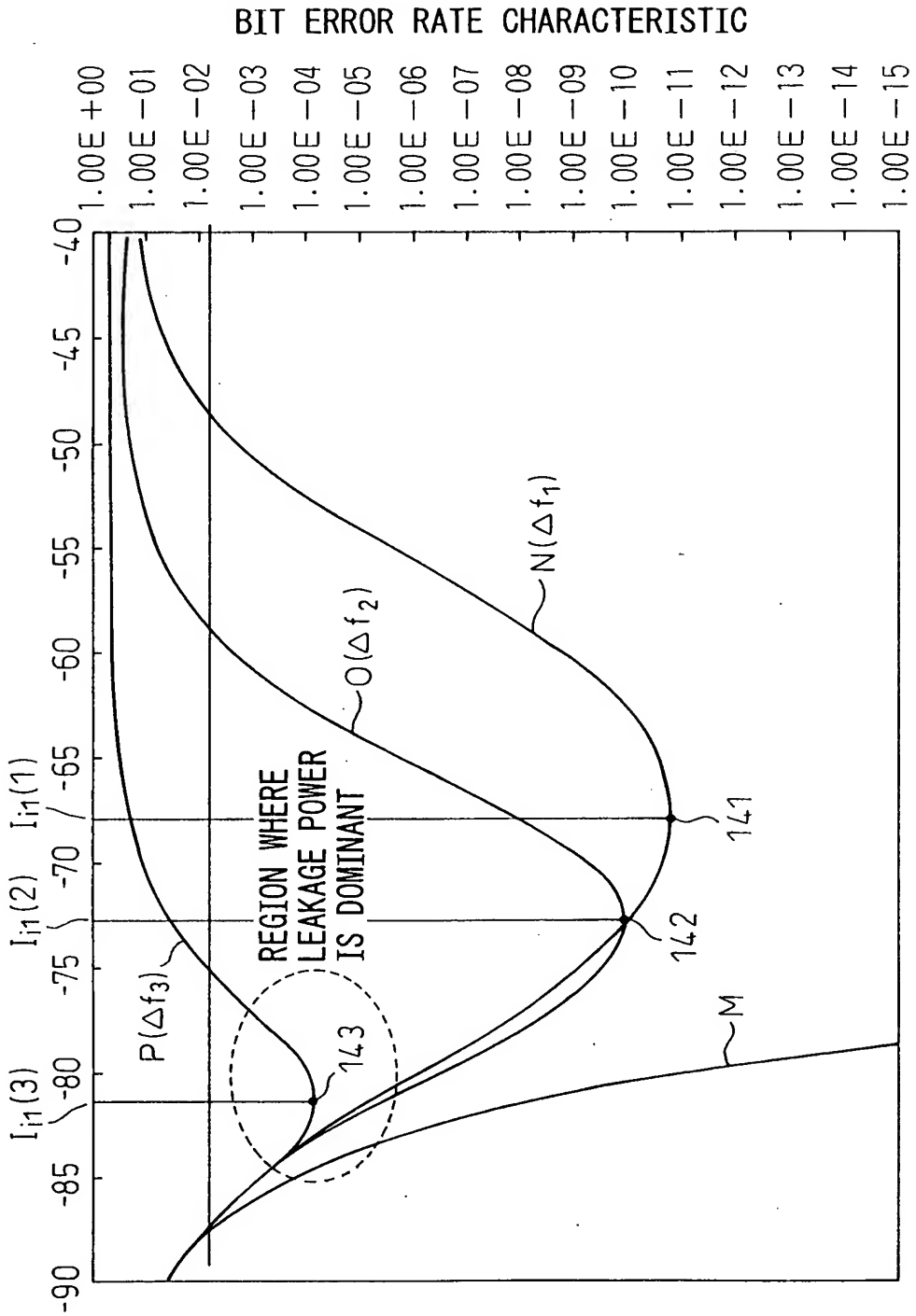
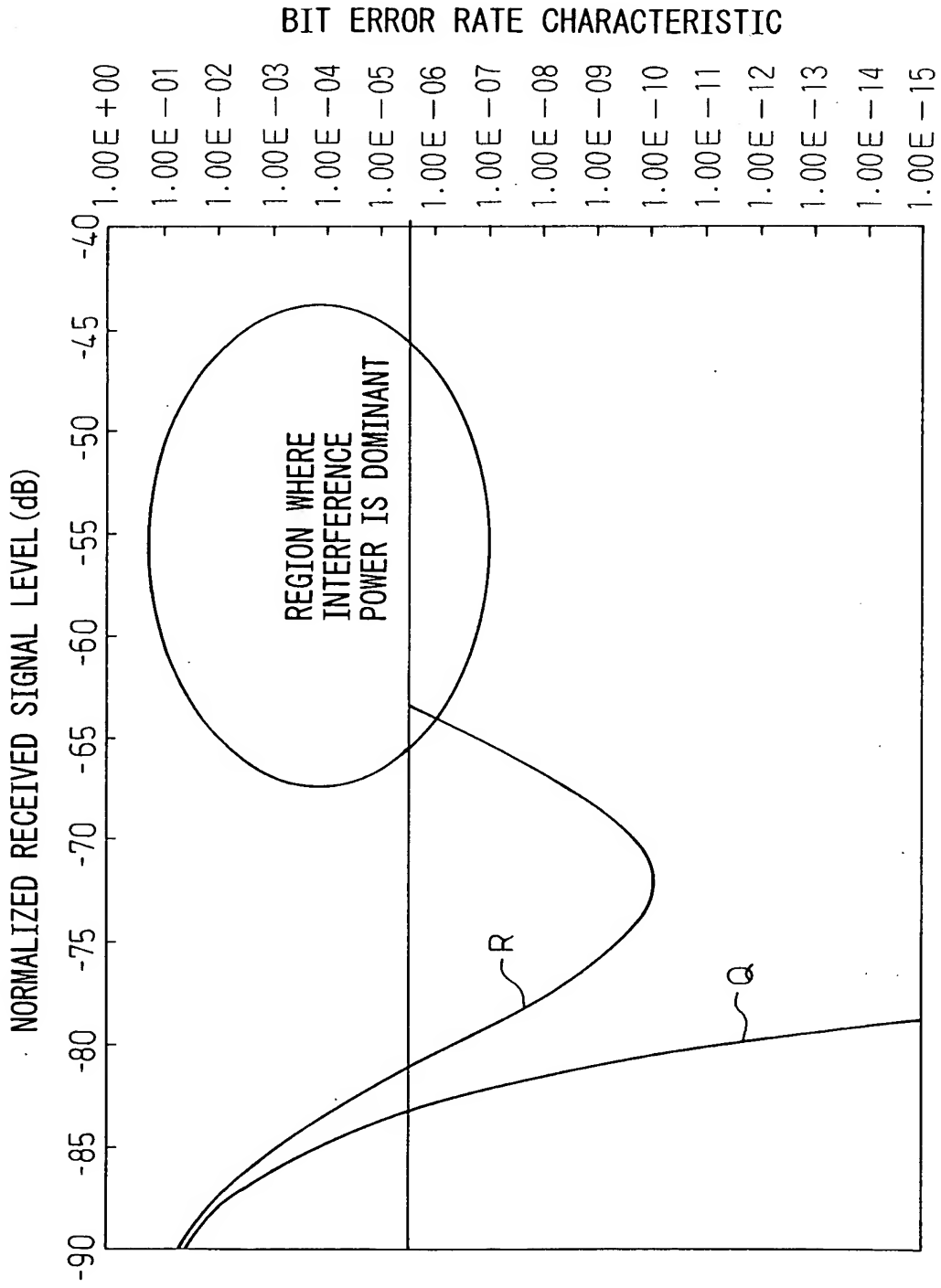

BIT ERROR RATE CHARACTERISTIC
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
NORMALIZED RECEIVED SIGNAL LEVEL (dB)
-40
-45
-50
-55
-60
-65
-70
-75
-80
-85
-90
I_i1(1)
I_i1(2)
I_i1(3)
P(Δf3)
O(Δf2)
N(Δf1)
M
REGION WHERE LEAKAGE POWER IS DOMINANT
141
142
143

Fig.15


BIT ERROR RATE CHARACTERISTIC
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
1.00E-14
1.00E-15
NORMALIZED RECEIVED SIGNAL LEVEL (dB)
-40
-45
-50
-55
-60
-65
-70
-75
-80
-85
-90
REGION WHERE INTERFERENCE POWER IS DOMINANT
R
Q